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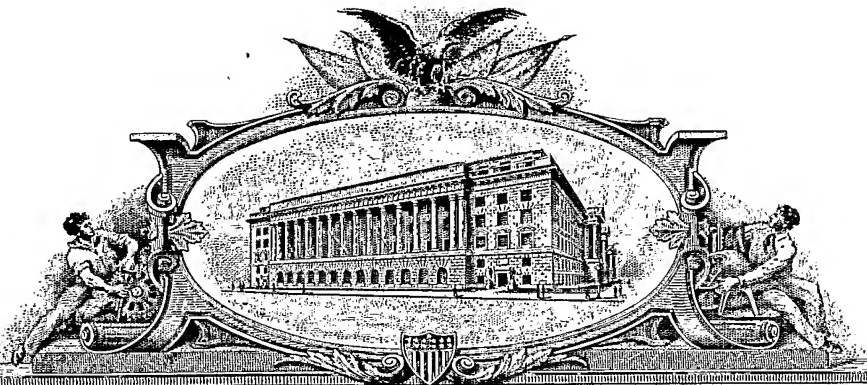
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**APPLICATION NUMBER: 60/542,851**

**FILING DATE : February 10, 2004**

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13281 U.S. PTO

## Mail Stop Provisional Patent Application

PTO/SB/16 (6-95)

Approved for use through 04/11/98. OMB 0651-0037  
Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

## PROVISIONAL APPLICATION COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION under 37 CFR 1.53 (c).

Docket Number		659-59		Type a plus sign (+) inside this box→	+
INVENTOR(S)/APPLICANT(S)					
LAST NAME	FIRST NAME	MIDDLE INITIAL	RESIDENCE (CITY AND EITHER STATE OR FOREIGN COUNTRY)		
MAXWELL BURNETT	Ian Ian	A. S.	New South Wales, Australia New South Wales, Australia , , ,		

TITLE OF THE INVENTION (280 characters)

A CONTENT DISTRIBUTION SYSTEM

## CORRESPONDENCE ADDRESS

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## ENCLOSED APPLICATION PARTS (check all that apply)



Specification

Number of Pages

12



Applicant claims "small entity" status.



Drawing(s)

Number of Sheets

5



Other (specify)

## METHOD OF PAYMENT (check one)



A check or money order is enclosed to cover the Provisional filing fees (\$160.00)/(\$80.00)



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The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.



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Yes, the name of the U.S. Government agency and the Government contract number are:

Respectfully submitted

SIGNATURE

Larry S. Nixon

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February 10, 2004

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Larry S. Nixon

REGISTRATION NO.  
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25,640



Additional inventors are being named on separately numbered sheets attached hereto.

## PROVISIONAL APPLICATION FILING ONLY

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## A CONTENT DISTRIBUTION SYSTEM

### Field of the Invention

- 5 The present invention relates to a content distribution system, and more specifically to a system for facilitating the distribution of content using peer to peer networks.

### Background of the Invention

- 10 The growth of peer to peer (P2P) networks and their use for distributing content, such as music, video and graphic files, has been considerable in recent years. P2P networks allow each computer on the network to equally share its resources, and each computer can act as both a server and a client. P2P networks do not generally require a centralised server, that may act as a resource sharer or file server, and typically no computer has more control over
- 15 the network than any other. Whilst it is difficult to administer and monitor activity on such networks, they have the advantage that users are generally free to trade content files without reference to any administration or authority system. The networks are established by each of the participating computers running a P2P client, such as the Morpheus (<http://www.morpheus.com>), Limeware (<http://www.limeware.com>), BearShare
- 20 (<http://www.bearshare.com>), Kazaa (<http://www.kazaa.com>), and Grokster (<http://www.grokster.com>) clients, for the respective networks of the same name. The clients all use a P2P protocol, such as Gnutella (<http://www.gnutella.com>), to establish connections to the P2P network, normally using TCP/IP and IP connections to the Internet.
- 25 Whilst the P2P networks are popular for content distribution, they have also been widely criticised for facilitating the distribution of content, particularly music and films, without the authority of the owners or licensees of the copyright in that content, and more particularly without any benefit returning to the owner or creator of the content. The P2P networks have therefore been derided as being networks for trading unauthorised or pirate
- 30 content, and participants have been the subject of extensive litigation by content owners and publishers (<http://www.P2Punited.org>, <http://www.riaa.org>, <http://www.mpaa.org>).

- 2 -

In view of the above, it is desired to provide at least an alternative or a content distribution system that encourages decentralised content distribution and also provides a process whereby participating parties and content owners and creators can be remunerated.

5

### **Summary of the Invention**

In accordance with the present invention there is provided a content distribution system, including:

- 10        a registration module for receiving registration data for a digital item accessible on a communications network using a digital item client on a first device;
- an activity module for receiving a request for content of said digital item or digital item declaration from said client on a second device; and
- a transaction module for registering download of said content to said second
- 15        device, for processing payment transactions with said second device, and for processing remuneration transactions with at least said first device.

Advantageously, said digital item may be accessible on a P2P network.

- 20        A digital item, as referred to herein, is a digital object having a structure, metadata and resources. Digital items may be declared in a Digital Item Declaration (DID) using a Digital Item Declaration Language (DIDL), as specified by the MPEG standard ISO21000-2, however, it will be appreciated the invention is not limited to a digital item defined by such a DIDL and other definitions are equally applicable. It should be noted that a DID,
- 25        while normally an integral part of a digital item, can be transferred independently between parties to disclose the structure metadata and resources of a given digital item.

- Advantageously, said digital item may include by reference said content for download and other content accessible by said second device without payment. Preferably said
- 30        remuneration transactions include storing credit data on a centralised or distributed server for a user of said first device, said credit data representing credits that can be used for

- 3 -

payment of requested content.

Preferably, said digital item clients include means for the creation and improvement of said digital items or digital item declaration, said creation and improvement including:

- 5 reorganisation and editing of content
  - editing and establishment of a digital item declaration
  - addition of 'buy buttons' to the said digital item by including resources or metadata in said digital item's digital item declaration
- 10 Preferably the content distribution system includes a search module generating a search interface to a search engine locally or via a network connection for processing search queries in relation to content on said network, and providing responses with references to digital items or the declarations thereof, said responses being ranked preferably at least on the basis of a party's use of the system. For example, a party associated with more sales of
- 15 content, or a higher customer/user review of digital items created by the party, has a higher rank than a party associated with less sales or poorer review of content using the system.

- Preferably the digital item includes buy data (preferably metadata) which can be used by application software to generate a buy button for said content, which on selection by a user
- 20 on said second device generates said request. Preferably said content is downloaded from a location referenced, directly or indirectly, by said digital item, and said location may be maintained by a content publisher or creator. Advantageously said digital item may reference an unauthorised copy of said content and include buy data for an authorised copy of said content. References to said unauthorised copies may use identifiers appropriate to
- 25 said P2P network.

- Advantageously, said buy buttons are graphically displayed, based on buy button metadata, as part of the display of the digital item or digital item declaration. Advantageously said buy buttons may be generated by a program included directly or by reference in the digital
- 30 item or generated directly by the client application or generated by the client application on the basis of said buy button metadata being included in the digital item. Preferably the buy

- 4 -

button metadata describes seller information, pricing, location of licenses, characteristics of the display of the button, purchasing options and options to allow display on a variety of devices. The buy button is not restricted to facilitating purchase transactions but may also facilitate registration of information to acquire evaluation or sample resources. The digital  
5 item is also preferably enhanced by the use of presentation metadata which instructs application software or the digital item client how to present the contents of a digital item declaration and the digital item contents and metadata to a party.

Preferably said remuneration transactions include providing a percentage of remuneration  
10 to said content publisher or creator and a percentage of remuneration to a user of said first device when that user has contributed, created or improved the digital item or said digital item's declaration.

Preferably said payment transactions include obtaining payment from the user of said  
15 second device for said remuneration.

Preferably said digital item client includes payment means for processing secure payment transactions for digital items and digital item content. The digital item client may also include presentation means for controlling presentation, update and interaction with a  
20 party's credit data. The credit data or part thereof may be stored centrally on a server, on a host platform for the digital item or on a second platform. Advantageously said second platform may be a mobile device allowing transfer of party credit data or part thereof. Advantageously party credit data may be held securely and transferred securely on and between all platforms of the system.

25 Advantageously, said digital item client is adapted to place a number of digital items on said P2P network, and said digital items may include or reference to one or more content elements, such as audio, video, images, text or graphic elements, and the content elements may be public domain, unauthorised, or authorised elements that may require a payment or  
30 may be freely available. Placing a digital item on said P2P network may require P2P availability of the said Digital Item declaration alone, the said digital item declaration and

- 5 -

some content elements, or the said digital item in its entirety. In all cases said digital item may be made available on the P2P network in its native formats, packaged as a single file (in for example the ZIP format), or represented in a binary format for enhanced compression, streaming or access speed.

5

The present invention also provides a content distribution process, including:

receiving registration data for a digital item accessible on a communications network using a digital item client on a first device;

10 receiving a request for content of said digital item from said client on a second device;

registering download of said content to said second device;

processing payment transactions with said second device; and

processing remuneration transactions with at least said first device.

15 Preferably registration data is accepted for new digital items when a party has contributed new content, new metadata, or a new digital item declaration to said digital item.

### **Brief Description of the Drawings**

20 Preferred embodiments of the present invention are hereinafter described, by way of example only, with reference to the accompanying drawings, wherein:

Figure 1 is a block diagram of a preferred embodiment of a content distribution system;

Figure 2 is a message flow diagram of a digital item registration process of the system;

Figure 3 is a diagram of a purchase request process of the registration system;

25 Figure 4 is a flow diagram of a download monitoring process of the system; and

Figure 5 is a diagram of a payment and remuneration process of the system.

### **Detailed Description of Preferred Embodiments of the Invention**

30 A content distribution system, as shown in Figure 1, includes a content control system 100 that operates with peer to peer (P2P) clients 102 and 104. The control system 100 includes



- 6 -

a web server, such as Apache (<http://www.apache.org>), a number of modules provided by software in languages such as Java (<http://www.java.sun.com>) and Perl (<http://www.perl.org>), and a database server provided using software such as MySQL4 (<http://www.mysql.org>), which are all run on the Linux OS (<http://www.linux.org>) on a standard personal computer (<http://www.ibm.com>). As will be understood by those skilled in the art, the components of the control system 100 can also be placed on a number of distributed computers connected by a communications network 150, and the processes executed by the components and modules can also be executed at least in part by dedicated hardware circuits, eg ASICs. The control system 100, in addition to providing a web site, for access by the clients 102 and 104 and standard web browsers (such as Microsoft Explorer), and a search engine, executes a transaction and content distribution control process described below.

The P2P client 102 includes a standard P2P client, such as the client provided by Shareaza, KaZaA, Slyck, iMesh, Emule, or eDonkey, but supports several of the existing P2P networks, ie Gnutella, eDonkey, and KaZaA. In another embodiment the client supports only a specialised P2P network for a category of P2P clients or a subset thereof, and the subset may be defined by client users or by the distributors of content. The P2P client also includes additional software classes that allow for access and creation of digital items, in accordance with the MPEG-21 standard administered by the International Organisation for Standardisation, ie ISO 21000-2. Digital items are structured digital objects, including a standard representation and identification, and metadata. Digital items are the basic unit of transaction in the framework provided by the MPEG-21 standard. A digital item (DI) is a combination of resources, such as video, audio images etc, and metadata, such as MPEG-7 descriptors, and structure which describes the relationship between the resources. Whereas MPEG-2 and MPEG-4 cover the encoding of audio and visual content, and MPEG-7 covers metadata that describes multimedia content, MPEG-21 covers a framework for the creation, production, delivery and trade of electronic content. Digital items may be declared using the Digital Item Declaration Language (DIDL), typically a DIDL specified by the MPEG-21 standard (ISO21000-2), in a digital item declaration (DID). However, it will be appreciated the invention is not limited to digital item defined by such a DIDL and

- 7 -

other definitions using XML or other languages and formats are equally applicable. While digital items may be delivered or stored as a single package they are generally a 'virtual' container. A user may receive only a digital item declaration (written in Digital Item Declaration Language) for the digital item. Content and metadata may be accessed by  
5 reference from the digital item declaration.

The P2P client 102 includes a P2P network interface, a web browser interface, a library interface that allows the archival and "drag and drop" management of a user's content files, and a search facility that provides standard web searching, P2P network searching and P2P  
10 downloads, particularly P2P downloads that involve the content control system 100. The P2P client 102 includes digital item creation code that provides an interface that allows content files, such as audio, video, image and text files, to be dragged and dropped from the operating system desktop or other software applications into a container that represents the digital item. Other means of creating Digital Items may also be incorporated e.g using  
15 menus and file browsing, text editing of the Digital Item Declaration, and automatic creation of DIs using 'Wizard' interfaces. The metadata for the digital item can be customised and includes digital item identification (DII). The digital item creation interface includes an editor window and a navigation view that allows content elements to be selected, adjusted and placed within the digital item. Content-sensitive pop-up menus  
20 are included to add new elements to the digital item, set attribute values, set the text content of a statement element, and specify the content resource reference by a resource element. Content resources, such as audio and video files, may be included within a digital item or simply referenced by the item.

25 Once created, the digital item can be validated by parsing and validating its DID, against the standard ISO 21000-2 on demand, and saved. The content referenced by the digital item may be unauthorised content ripped from other storage media, such as CDs or DVDs, or may be content that is original and authored by the user of the client 102. The content may also be content that the user has an authority to publish from the content owner. The  
30 P2P client 102 can therefore be used on computer systems of consumers of content 108, creators of content 110 (who may also consume content), artists or content authors 112,

- 8 -

and publishers 114. The computer systems 108, 110, 112, 114 required to run the P2P client 102 are standard computer systems, such as a personal computer (<http://www.ibm.com>) running the Linux OS (<http://www.linux.org>) or Microsoft Windows. The P2P client is written in Java, but could also be written in C++ or a number  
5 of other software languages.

The P2P client 102 may be substituted by an advanced version of the client that includes additional features, such as enhanced interfaces, with the ability to create digital items that operate across multiple clients, and digital rights management (DRM) capabilities. The  
10 advanced client may also include a web server to allow P2P users to see a collection of digital items created by the user. Music mixing and sampling software can also be incorporated or referenced in the advanced client.

Content owners, publishers and distributors, and content authors, such as artists, are able to  
15 use on their computer systems 112 and 114 a digital item creator module 104 that includes all of the digital item creation software tools of the advanced P2P client, and allows the digital item to be placed in the P2P networks and registered with the content control system 100, but does not include other aspects of the P2P client.

20 The digital item creation tools of the P2P client 102 and the creator client 104, allow a digital item, once it has been created, to be registered with the control system 100, as shown in Figure 2. The control system 100 includes the control web site (e.g. <http://www.enikos.com>). Once registered with the control system 100, at step 200, the digital item or only the digital item declaration or parts of the digital item is made  
25 available, at step 202, on the P2P networks that the P2P client supports, by storing it in a searchable folder hosted on the creator's system 110, 112 or 114. The digital item is created with purchase metadata for a number of content control buttons, and in particular at least one 'buy' button, eg buy album, buy track, or a direct reference to a buy button in a third party site (eg [www.amazon.com](http://www.amazon.com)). A consuming user 108 that locates the digital item  
30 on the P2P network with the P2P client 102, at step 204, is able to access content of the digital item and use it, subject to any restrictions placed on the referenced content. For

- 9 -

example, some music tracks may be played in an unrestricted manner, whereas other music tracks may only be allowed to be played for a few days, before the track has to be purchased. The P2P interface of the P2P client 102 shows the different types of content referenced by digital items and the extent to which there are restrictions placed on the different types of content, eg free or ripped content is displayed separately from other content that needs to be purchased. Any buy buttons are generated as part of the P2P interface on the basis of the purchase metadata for pay content.

When a consumer selects the buy button, as shown in Figure 3 at step 300, the P2P client 102 passes a request back to the creator of the digital item 110 to 114 for the content, at step 302, and the request is registered with the control system 100, at step 304.

The requested content is then downloaded, with associated licence data and other metadata, from the referenced host or hosts 110, 112, or 114 using the P2P client 102 or the DI creator module 104, at step 400, as shown in Figure 4. The content is downloaded directly to the P2P client 102 of the consumer's system 108. At step 402, the download is registered, together with any copyright information in the content control system 100.

On receiving the requested content of the digital item, the consuming user 108 must then execute payment transactions to pay for the download and release the content, at step 500 shown in Figure 5. The release of the content is typically accomplished by sending a decryption key to the user as a fulfilment of the grant of a license for the content. The mechanisms of the release of the content on the basis of a license may follow one of the many Digital Rights Management mechanisms allowing secure delivery of content, eg Microsoft's Windows Media DRM or Intertrust's DRM solutions. The content control system 100 controls the payment transactions to ensure payment is received and provides certificates, licenses and keys as appropriate to allow the requested content to be freely used by the user 108.

Once payment has been received, the control system 100, on the basis of rights expressions, licenses, or other metadata information contained in the registered digital item

- 10 -

executes remuneration transactions with at least one of the systems 110 to 114 to control the distribution of remuneration to the various parties involved in the content distribution system. For example, at step 502, a percentage of the payment amount is kept by the operator of the control system 100, a percentage is passed to the owner of the content, such as a music publisher, and a percentage is passed to the creator of the content, such as an artist 114 or creating consumer 110. Payment and remuneration can be exchanged in a variety of forms. For example a direct monetary payment can be made to content owners and distributors 112, and credit accounts can be maintained by the control system 100 for creating consumers 110, the accounts having data representing credits for purchases of other content.

As mentioned above, the digital items may include unauthorised, unlicensed or ripped content, but in each case when a digital item is created the creation tool includes an option to add a legitimate licensed copy of the content, or at least a reference to such a legitimate copy. Users are encouraged to create the digital items with legitimate content because they are paid if they generate a DI, sign it, register it, include buy buttons for legitimate content, and another party requests the content using the buy buttons. They will receive a percentage payment if the content is bought, either from the operator of the control system or the content owner. Payment can be in the form of credits held and maintained by the content control system 100, which have the benefit of being traded on the system 100 for subsequent purchases, and on other systems, such as Amazon (<http://www.amazon.com>) and eBay (<http://www.ebay.com>), for other purchases, or redeemed as cash, or used in any of numerous barter systems now available on the Internet

The search engine of the content system 100 returns search results for registered digital items. The search engine is accessible by the web site of the system 100 and by the P2P interface of the client 102. Creating users 108 who are successful, and accumulate a number of credits and/or give rise to a number of purchases of legitimate content, derive a further benefit in that the ranking for their digital items are ranked higher in search results returned by the search engine. The ranking can be determined on the basis of the credits and/or successful sales of content generated by a user 110, and/or reviews by consumers of

- 11 -

the digital items and their creators As users of the P2P client 102 can be consuming and creating users, this assists with distribution and creation of the digital items. Highest ranked users are also able to sub-licence their search engine ranking to other users.

- 5 The content referenced in the digital items created by the users 110 to 114 will be able to be identified because users will include identifiers in the DID of a digital item in order to receive possible remuneration.

10 The content distribution system also includes a gateway server 120 that allows digital items to be accessed and served to users that having a device that cannot run P2P client 102, eg users with a PDA or mobile phone. The gateway server 120 maintains a version of the P2P client 102 and provides an interface for different devices to enable access and purchase of digital items. The gateway server 120 connects the control system 100 using a communications network 150 that can supports the TCP/IP protocols.

15

Many modifications will be apparent to those skilled in the art without departing from the scope of the present invention, as described herein with reference to the accompanying drawings. For example, although the specification describes a number of electronic processes being executed and controlled by software, those skilled in the art will readily  
20 appreciate that a number of these processes can be executed solely by dedicated electronic circuits, such an ASIC or FPGA.

- 12 -

## CLAIMS

1. A content distribution system, including:
  - a registration module for receiving registration data for a digital item accessible on
  - 5 a communications network using a digital item client on a first device;
  - an activity module for receiving a request for content of said digital item or digital item declaration from said client on a second device; and
  - a transaction module for registering download of said content to said second device, for processing payment transactions with said second device, and for processing
  - 10 remuneration transactions with at least said first device.
2. A content distribution process, including:
  - receiving registration data for a digital item accessible on a communications
  - network using a digital item client on a first device;
  - 15 receiving a request for content of said digital item from said client on a second device;
  - registering download of said content to said second device;
  - processing payment transactions with said second device; and
  - processing remuneration transactions with at least said first device.

20

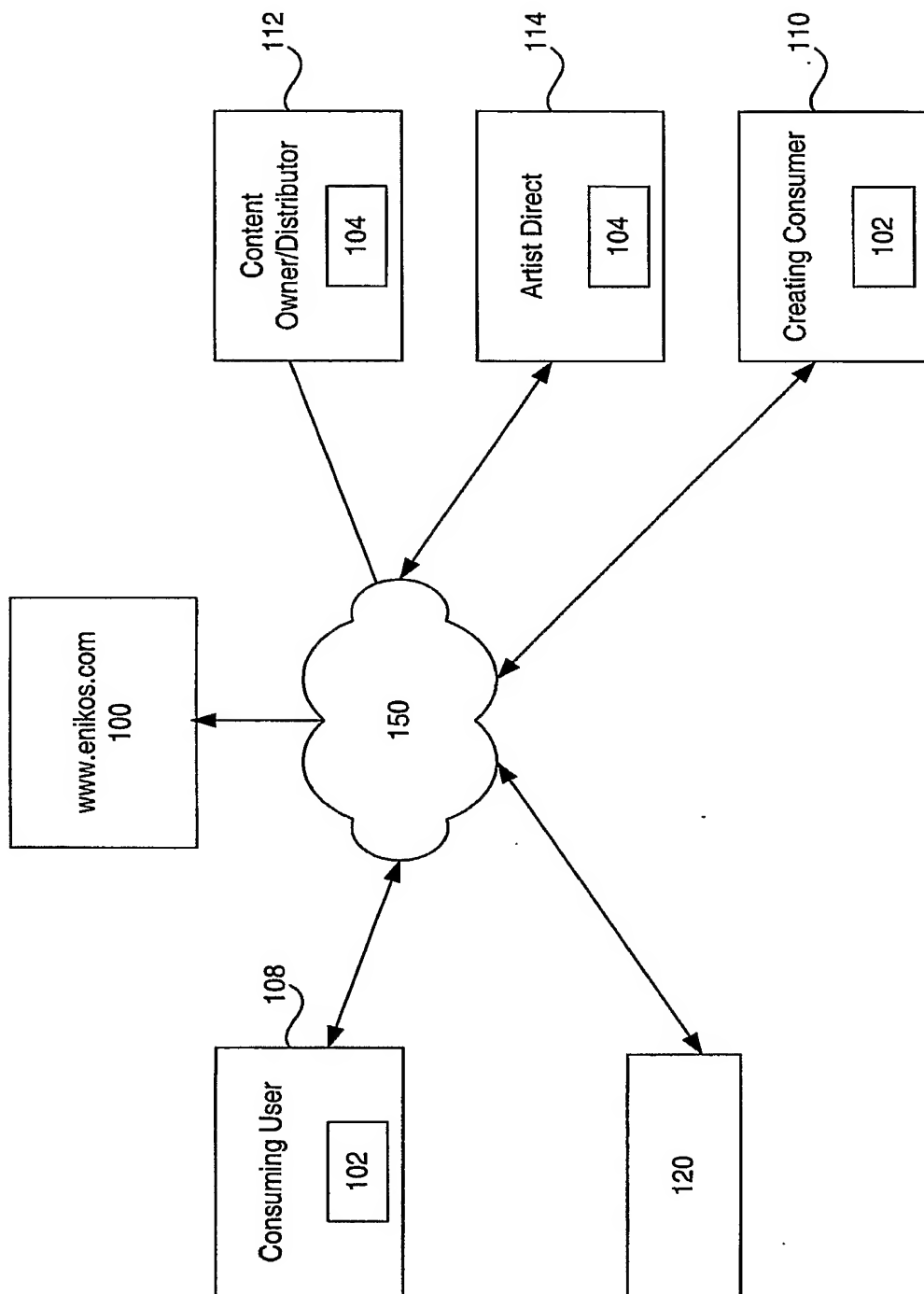


Figure 1



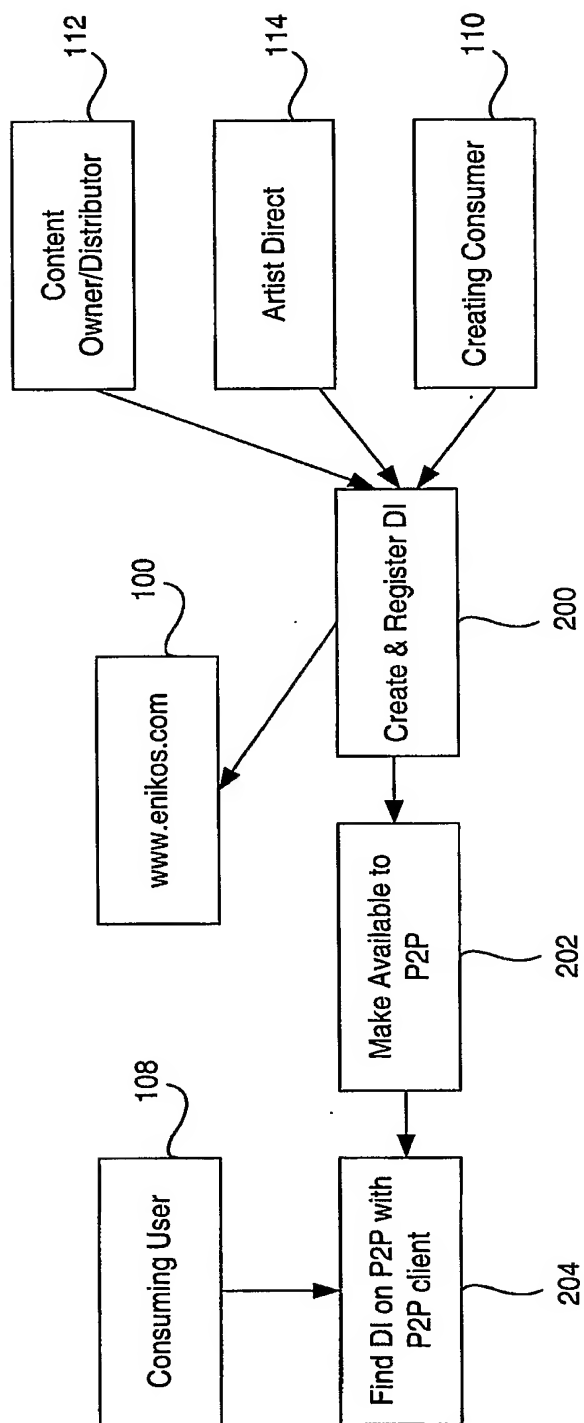


Figure 2

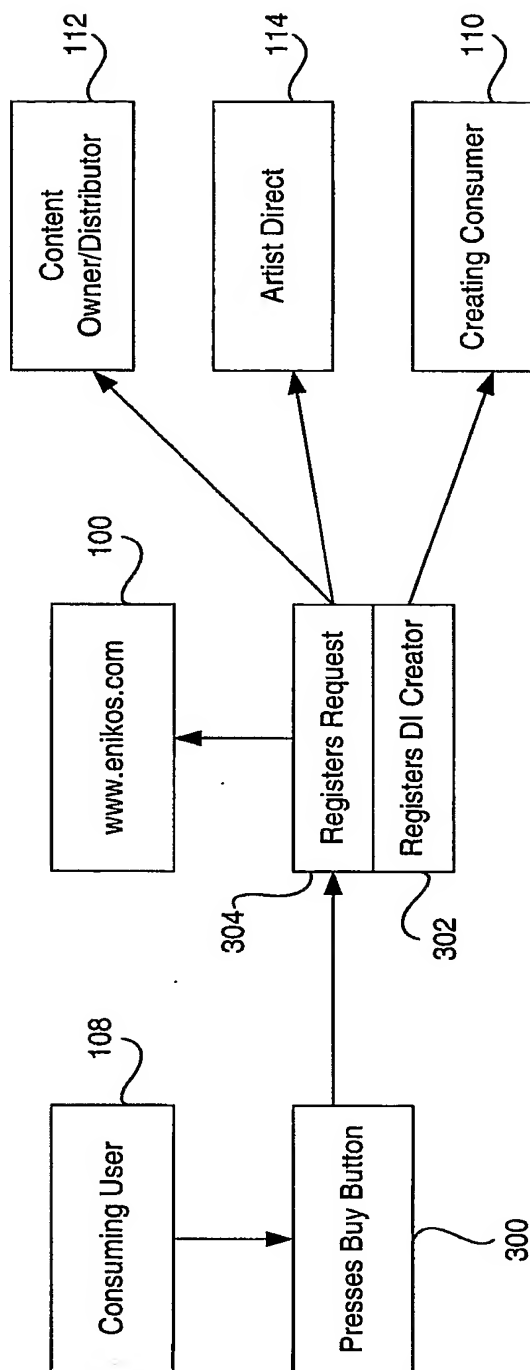


Figure 3

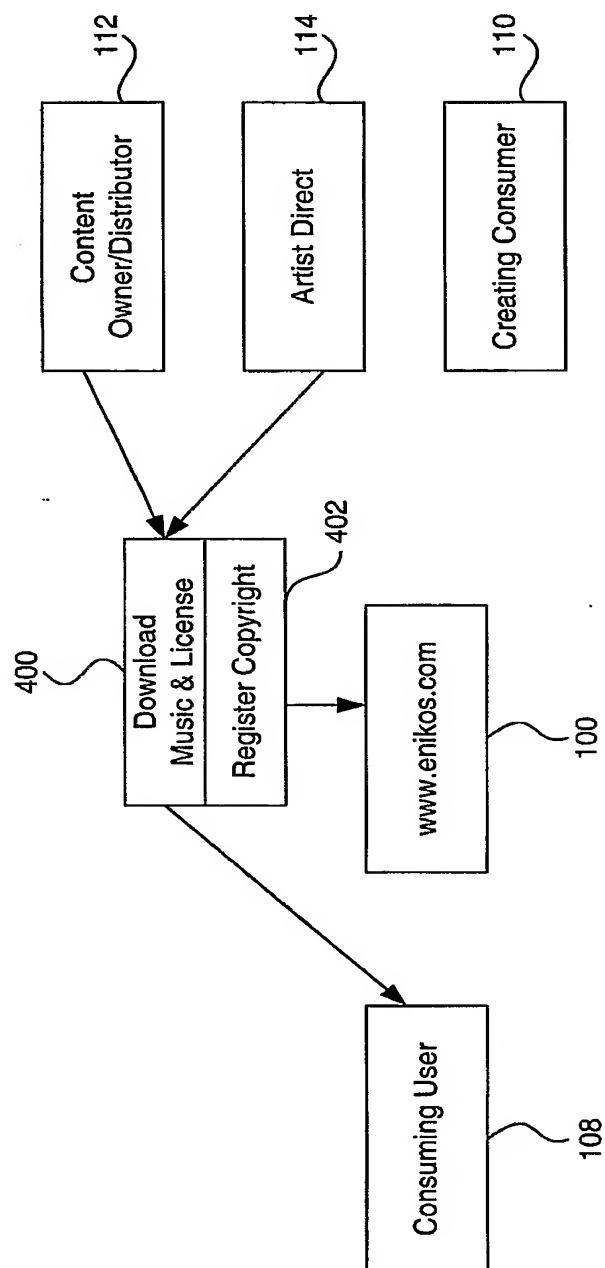


Figure 4

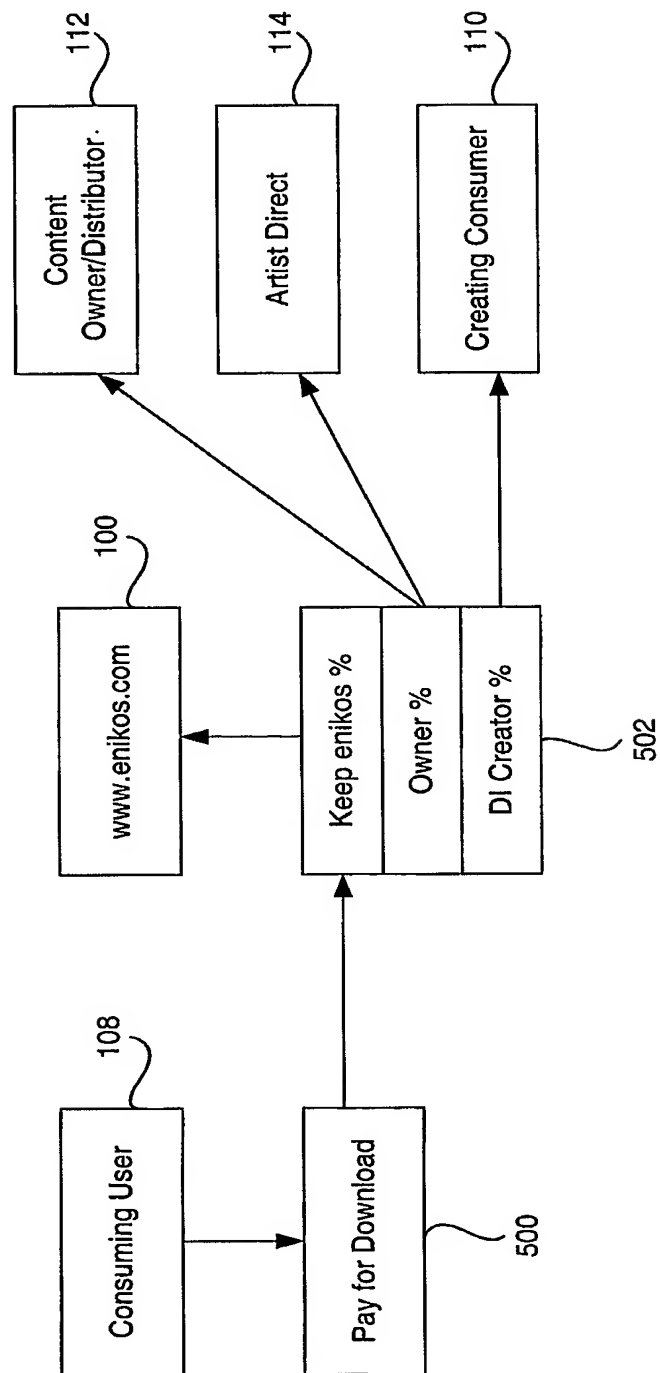


Figure 5